



Pennsylvania State University Title IX Compliance Report



Department of Geosciences

**Office of Diversity and Equal Opportunity
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I. INTRODUCTION

NASA conducted a compliance review of the Pennsylvania State University (Penn State or PSU) Department of Geosciences (the Department) in PSU's College of Earth and Mineral Sciences (the College or CEMS), to ensure that beneficiaries of NASA grants have equal opportunity, without regard to sex, to pursue, participate in and benefit from academic research, career development opportunities, extracurricular and other educational activities.¹ The review was conducted under Title IX of the Education Amendments of 1972, and NASA's implementing regulations and policy, which prohibit discrimination on the basis of sex in educational programs and activities receiving Federal financial assistance.²

A. Background

NASA Title IX regulations provide for periodic review of NASA grant recipients.³ These regulations became effective in November 2000. NASA's Title IX compliance program received further impetus with the July 2004 report of the Government Accountability Office (GAO), which recommended that Federal agencies conduct onsite compliance reviews.⁴ In addition, NASA's 2005 authorizing legislation requires the Agency to conduct at least two Title IX compliance reviews annually.⁵ NASA has been involved in many Title IX related compliance activities since the regulations were issued in 2000, conducting a number of limited-scope "desk-audit" as well as onsite reviews of grant recipients.

B. Objectives and Scope

NASA sought to achieve the following key objectives in conducting this review:

Objective 1

Evaluation of PSU's compliance with NASA Title IX regulations, specifically to:

- Assess the Title IX Coordinator's role and functioning; confirm the existence of Title IX policy and procedures and the quality of their dissemination; evaluate Title IX grievance procedures and the effectiveness of their implementation; and review Title IX self-evaluation efforts, specifically regarding the PSU program under review; and
- Evaluate the Geosciences program's provision of equal opportunity regardless of gender in the following areas of program administration: student recruitment, outreach, admissions,

¹ Prior to the issuance of this report, a former PSU assistant football coach was convicted on charges of sexually assaulting minors in PSU athletic facilities. This matter is well beyond the scope of NASA's review, as our focus was on the Geosciences program. However, since NASA provides PSU with funding on a regular basis for a wide array of research and educational programs that serve elementary and secondary school children in grades K-12, as well as undergraduate and graduate students, NASA will closely monitor the outcomes of any investigations or legal proceedings resulting from the criminal matter referred to above that could have an impact on PSU's compliance with Title IX and other civil rights laws and regulations.

² Title IX of the Education Amendments, as amended (20 U.S.C. §§ 1681-1688); Nondiscrimination on the Basis of Sex in Education Programs or Activities Receiving Federal Financial Assistance, 14 C.F.R. Part 1253; NASA Policy Directive 2081.1A, Subject: Nondiscrimination in Federally Assisted and Federally Conducted Programs of NASA - Delegation of Authority.

³ See 65 Fed. Reg. 52,859 (Aug. 30, 2000). Enforcement Procedures, 14 C.F.R. § 1253.605 (incorporating compliance requirements of Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d)).

⁴ Government Accountability Office, *Gender Issues: Women's Participation in the Sciences Has Increased, but Agencies Need to Do More to Ensure Compliance with Title IX* (July 2004) (July 2004 GAO Report). Included in the Report's recommendations was that "the Administrator of NASA continue to implement its compliance review program to ensure that compliance reviews of grantees are periodically conducted." (p. 28).

⁵ See NASA Authorization Act of 2005, 42 U.S.C. § 16798(b). Note that NASA's most recent authorizing legislation does not include this provision; however, as the original provision had no sunset clause, we continue to seek to meet the 2005 requirement.

enrollment, retention, academic advising, research participation, classroom and lab experiences, policies/procedures, and student experiences relating to parental/marital status (“family friendly” policies), physical safety of the program environment, and, finally, recent faculty recruitment efforts.

Objective 2

Identification of promising practices of PSU and the Geosciences program designed to promote gender equity, specifically to:

- Describe efforts consistent with the recommendations and focus of the July 2004 GAO report; and to
- Determine the extent to which promising practices are actually helping to create greater gender equity and diversity in the program, for both students and faculty.

C. Methodology

1. Pre-onsite Review Activities

NASA developed a Title IX compliance review plan (CRP) to identify relevant regulatory requirements, potential issues and specific inquiries needed to conduct a thorough compliance assessment of its grantees. The CRP was developed in consultation with the U.S. Department of Justice (DOJ), Civil Rights Division, and the U.S. Department of Education (ED) Office for Civil Rights (OCR), the lead agencies on Title IX investigations. In addition, NASA developed a Title IX literature review to better understand concerns regarding gender in science, technology, engineering, and mathematics (STEM) fields as well as strategies grant recipients should consider to address such concerns, including Title IX compliance efforts in the STEM context. (See Appendix: Summary Literature Review).

The CRP identified two focal points for compliance assessment: 1) Title IX procedural compliance requirements; and 2) program administration, that is, policies, procedures, and practices affecting the academic environment (see “Objectives,” above). The CRP also identified the methods by which needed information would be gathered from recipients, including: information requests for statistical data and relevant policies and procedures, and an on-site visit to interview university officials, program faculty, and students.

NASA uses a deliberative internal process to identify recipients for its onsite compliance reviews under Title IX. Typically, NASA selects a recipient using neutral criteria that include the amount of Federal financial assistance the recipient receives from NASA on an annual basis, the academic programs receiving this assistance, the number of students in the NASA-funded program (particularly female students) and geographical location of the recipient. PSU is one of NASA’s largest grant recipients, receiving at least \$6,602,066 in multi-year grants in FY 2010.

NASA notified PSU of the onsite compliance review in August 2010 and subsequently requested data and Title IX compliance information for the Department and PSU, which it received in September 2010. NASA also requested from the U.S. Department of Education’s Office of Civil Rights (ED OCR) copies of all Title IX complaints filed against PSU in the five-year period preceding this compliance review. NASA found that while several Title IX complaints were filed against PSU with ED OCR involving alleged gender discrimination, none involved the Department or the College.

2. On-site Compliance Review Activities

The NASA compliance team conducted an on-site review of the PSU Geosciences Department during the week of November 16-19, 2010. During its visit, the compliance team conducted one-on-one interviews with six female Geosciences faculty members and five male Geosciences faculty members, including the Department Head. The compliance team also interviewed the PSU Title IX Coordinators and their lead staff persons: one assigned to student-related compliance and the other assigned to faculty and staff-related compliance, including complaint and grievance processing. The compliance team also conducted one-on-one interviews with ten Geosciences graduate students (six females and four males), three female post doctorates, and four undergraduates (two female and two male).

II. COMPLIANCE REVIEW ANALYSIS

The compliance review analysis provides an assessment of issues within the two focus areas of procedural compliance requirements and program administration. Regulatory requirements and findings of fact are set forth as part of the compliance assessment. The recommendations are intended to strengthen existing compliance activities. Promising practices associated with each of the compliance areas are also reported.

A. Designation of Responsible Official for Title IX Coordination and Enforcement

1. Compliance Assessment

The NASA Title IX regulations state that a recipient must designate an official responsible for Title IX coordination and enforcement (the Title IX Coordinator).⁶ The recipient must notify all students and employees of the Title IX Coordinator's name, office address, and telephone number.

a. Title IX Coordinator Contact Information Dissemination

NASA's compliance assessment focused first on the Title IX regulatory requirement to disseminate contact information for the Title IX coordinator and his or her office. PSU has designated the Vice Provost for Affirmative Action (the VPAA) as its Title IX Coordinator. The VPAA leads PSU's Affirmative Action Office (the AAO) whose mission includes support and enhancement for the University's commitment to diversity, expert advice and leadership to colleges, departments, faculty and staff in their efforts to recruit and retain a diverse workforce and efforts to ensure an environment free from discrimination and harassment.⁷ In addition to the AAO, the Office of the Vice Provost for Education and Equity (the OVPEE) also has Title IX roles and responsibilities. For example, the Vice Provost for Educational Equity (the VPPE), has responsibility for addressing matters relating to campus climate and student concerns and for supporting PSU's diversity and inclusion initiatives and advocating for PSU's historically underrepresented populations, including racial/ethnic minorities, women, and individuals with disabilities, as well as veterans and the lesbian, gay, bisexual, and transgender (LGBT) community.⁸

The identity, office address and office telephone number of PSU's Title IX Coordinator is widely published and disseminated in PSU's Non-Discrimination Statement (the Statement) on many PSU Web sites and print publications, such as University procedures, applications guidebooks, pamphlets and brochures. The University requires that all of its publications (except formal invitations) carry a form of the Statement. However, exceptions to the use of the complete text may be made by the University

⁶ Designation of responsible employee and adoption of grievance procedures, 14 C.F.R. § 1253.135(a).

⁷ PSU Affirmative Action Office Web site homepage: <http://www.psu.edu/dept/aaoffice/index.html>

⁸ PSU Office of the Vice Provost for Education and Equity webpage: <http://www.equity.psu.edu>

Editor.⁹ The review team found the Statement in the CEMS Undergraduate Student Handbook and the Department's newsletter for 2011. Oddly, however, the Statement was not found in the Department's Undergraduate or Graduate Handbook. The VPAA indicated to NASA that the Statement and other nondiscrimination policies are disseminated on posters and there is a sexual harassment brochure on the Web site, and that diversity training is conducted, especially on sexual harassment and gender equity. The VPAA also stated that similar information is inserted in orientation packets for new students and during structured meetings the non-discrimination policies are shared.

During onsite interviews, the compliance team sought to determine the extent to which students, faculty and staff were aware of the Title IX Coordinator, his office and the purpose of his office. Students and faculty informed NASA that a version of the Statement appears on course syllabi. The compliance team found that, despite the wide dissemination of the Statement, almost all of those interviewed were not familiar with the AAO. However, several of the interviewees were generally aware of the role of Title IX in athletics, if not academics. Students interviewed stated that while they did not know the name of the office to go to, if they had a concern they felt confident they could find it online. Students and faculty also stated to NASA that if they had been subjected to potential sex discrimination or sexual harassment, they believed they could easily find the VPAA and the AAO online (see Recommendation at II.B. 2(b)). Many interviewees stated that they would first contact the Department Head, the Ombuds, Undergraduate or Graduate Program Heads or their academic advisors.

b. Effective Title IX Coordination: Oversight of the Grievance Process, Authority/Access to Senior Leadership, and Training Efforts

While the NASA Title IX regulations do not provide further specificity regarding the role and effective functioning of the Title IX Coordinator, the U.S. Department of Justice (DOJ), which has oversight responsibility for all Federal Title IX compliance and enforcement activities, has provided guidance for Federal agencies evaluating recipient compliance with the Title IX Coordinator regulatory provision.¹⁰ These additional considerations appear in DOJ's document, "Questions and Answers Regarding Title IX Procedural Requirements" (Title IX Q&A).¹¹ For purposes of this review, NASA focused on the following areas, in addition to the regulatory requirement for contact information dissemination, identified in DOJ's Title IX Q&A:

- Effective functioning, including skills and competencies, regarding the administration and implementation of PSU's Title IX grievance process;
- The authority and access of the Title IX Coordinator to university senior leadership needed to effectively perform roles and responsibilities; and
- Appropriate training of faculty, staff, and students.

(i) Effective Oversight of the Grievance Process

Based on information provided by PSU, including resumes of staff members from both offices with Title IX coordination responsibilities, and interviews with these staff, NASA finds that the VPAA and his staff possess the appropriate knowledge base and expertise, as well as a proven ability to properly implement the PSU internal grievance procedures.

⁹ See University Policy on Visual and Editorial Standards at <http://ur.psu.edu/stylemanual/editorial/universitypolicy.html>.

¹⁰ See Executive Order 12250, 3 C.F.R., 1980 Comp. 298. Section 1-203 of the Executive Order states that "[t]he Attorney General shall develop standards and procedures for taking enforcement actions and for conducting investigations and compliance reviews."

¹¹ This document is accessible at <http://www.justice.gov/crt/about/cor/coord/TitleIXQandA>.

(ii) Authority and Access to Senior Leadership

Regarding the authority and access of the Title IX coordinator, NASA's review shows frequent interaction between the VPAA and the President, Provost, the VPEE and administrators at all levels throughout CEMS. The VPAA meets with the President and Provost every other week, separately, in one-on-one sessions and also attends the Provost's staff meetings. The Geosciences Department Head and other faculty in leadership roles indicated that they can go to the VPAA, the VPEE or the ADEE as needed. The VPAA also serves on PSU-wide standing committees to promote equity, such as the Commission for Women. Therefore, NASA finds that, the VPAA possesses the appropriate level of access and the necessary frequency of interaction with the University leadership to facilitate effective Title IX coordination within CEMS and the Geosciences Department.

(iii) Training, Education, and Awareness Efforts

The compliance team also examined the AAO's training efforts, as training is a critical part of the tasks and responsibilities of Title IX coordination efforts.¹² NASA found that equal opportunity and diversity training, including sexual harassment prevention, is provided by the AAO on an ongoing basis. Such training includes, but is not limited to, monthly orientation programs for new employees; supervisory workshops; annual workshops on sexual harassment prevention for the over 100 Sexual Harassment Resource Persons (SHRPs) available to academic units across PSU, including two within CEMS; a mandatory affirmative action/equal employment opportunity search committee briefing provided by the AAO to chairs of all search committees; and other courses and workshops offered several times a year covering how to file a discrimination complaint, including a separate course on the topic of retaliation. In addition, PSU informs NASA that it instituted a new policy for the 2011-12 academic year requiring all incoming first-year students under the age of 21 to complete a sexual assault awareness learning module prior to arriving on campus called PSU AWARE.¹³ The goal of this online learning is to help students increase their knowledge and understanding of sexual harassment and sexual assault (see "Promising Practice" below).

NASA notes that there is currently no commensurate training requirement for faculty and graduate students. Rather, the decision to have training conducted is left to the discretion of the Deans of the various Colleges. For example, NASA learned that a former Dean of the College of Agricultural Sciences made sexual harassment training mandatory for the faculty, staff and students of that academic unit. However, as a general matter, academic units rely on the AAO-provided training of SHRPs, who are staff persons in each PSU academic unit serving as dedicated resources or "point persons" for sexual harassment related concerns when they arise. NASA's review indicates that the SHRPs are not very well-known among Geosciences faculty and students, who tend to be far more knowledgeable regarding other available resources, such as their advisors and Departmental Ombudspersons (see Section II.B below). Since neither the faculty nor staff receives regular sexual harassment training this is a less than ideal system. Faculty and graduate students, often the "first line of defense" to whom undergraduate students raise such concerns, need to be well-acquainted with their, and the University's, obligations in this area. While addressing matters of discrimination and harassment are by no means the primary, or even a secondary concern for the vast majority of students during their academic careers, it is crucial for members of the academic community, including faculty, staff, and students, to be aware of what constitutes acceptable and unacceptable conduct, and what avenues are available to them if a concern should arise (see "Recommendation" below).

¹² See Title IX Q&A, "Designation of Title IX Coordinator – What factors should a recipient consider in designating a Title IX Coordinator?"

¹³ These students are also required to attend and complete an alcohol awareness module.

2. Recommendation

Additional Sexual Harassment/Sexual Assault Training Efforts. NASA recommends that the VPAA, in partnership with the VPPE, and other senior university leadership, work closely with the Deans of Colleges and Chairs of Departments to strongly encourage or require faculty and graduate students/teaching assistants (TAs) to avail themselves of regular (at least annually) sexual harassment/sexual assault training so that all members of the academic community are able to effectively assist PSU in implementing its Title IX obligations.

3. Promising Practice

Title IX Commitment Reflected in University Structures. PSU has divided its administration of equal opportunity, nondiscrimination and diversity between its OVPAA, which is responsible for civil rights/equal employment opportunity (EEO) regulatory compliance, and the OVPEE, which is responsible for diversity and campus climate issues. This allows compliance resources to be concentrated in one area and broader diversity and inclusion initiatives to be concentrated in a separate but complementary area. PSU has also undertaken the promising practice of embedding staff within its academic units, such as the CEMS Associate Dean for Educational Equity (ADEE) and other PSU colleges, who can help to implement nondiscrimination, equal opportunity and diversity policies, practices and initiatives at the college and departmental levels, as well as to serve as a ready resource for students, faculty and staff. Along these lines, PSU also has established a network of Sexual Harassment Resource Persons (SHRPs), who are staff persons in each PSU academic unit serving as localized resources or “point persons” for sexual harassment related concerns when they arise. Lastly, PSU has implemented mandatory sexual harassment/assault awareness education in the 2011-2012 academic year for incoming first-year students under the age of 21, who must complete the PSU AWARE module.

B. Adoption of Title IX Grievance Procedures and Title IX Policy Dissemination

1. Compliance Assessment

The NASA Title IX regulations require that recipient educational institutions adopt and publish grievance procedures providing for prompt and equitable resolution of student and employee complaints alleging any action that would be prohibited by Title IX.¹⁴ The regulations do not specify a structure or format for the grievance procedures.

NASA’s Title IX regulations also require grant recipients to take specific and continuing steps to notify students, employees, applicants for admission and employment, and unions or professional organizations having collective bargaining or professional agreements with the recipient, that it does not discriminate based on gender in the educational programs or activities that it operates, and that it is required by Title IX not to discriminate in such a manner.¹⁵

¹⁴ Designation of responsible employee and adoption of grievance procedures, 14 C.F.R. § 1253.135(b).

¹⁵ Dissemination of policy, 14 C.F.R. § 1253.140.

a. Grievance Procedures

NASA's compliance assessment seeks to ensure that PSU has developed and is implementing procedures that afford a grievant "prompt and equitable" resolution of student and employee complaints alleging any action that would be prohibited by the Title IX regulations.¹⁶ As the regulations do not provide any further specificity regarding the procedures, NASA looked to the DOJ Title IX Q&A and OCR's Revised Sexual Harassment Guidance, which provide additional considerations on the basic components of effective, i.e., prompt and equitable, grievance procedures in the discrimination and harassment context.¹⁷ In its Revised Sexual Harassment Guidance, OCR identified a number of elements in evaluating whether a school's grievance procedures are prompt and equitable, including whether the procedures provide for:

- Notice to students, parents of elementary and secondary students, and employees of the procedure, including where complaints may be filed;
- Application of the procedure to complaints alleging harassment carried out by employees, other students, or third parties;
- Adequate, reliable, and impartial investigation of complaints, including the opportunity to present witnesses and other evidence;
- Designated and reasonably prompt timeframes for the major stages of the complaint process;
- Notice to the parties of the outcome of the complaint; and
- An assurance that the school will take steps to prevent recurrence of any harassment and to correct its discriminatory effects on the complainant and others, if appropriate.¹⁸

OCR states that "[a] grievance procedure . . . cannot be prompt or equitable unless students know it exists, how it works, and how to file a complaint. Thus, the procedures should be written in language appropriate to the age of the school's students, easily understood, and widely disseminated."¹⁹ OCR further states that "[m]any schools also provide an opportunity to appeal the findings or remedy, or both."²⁰ However, OCR does not specifically include appeal rights among the elements it recommends in evaluating whether a recipient's procedures are prompt and equitable. More recently, OCR has advised grant recipients on their obligations under Title IX in the context of bullying and sexual violence on campus.²¹ To the extent that information from these recent guidances is relevant to our compliance assessment, we will discuss them below. However, as a general matter, grant recipient educational institutions should take all appropriate steps to ensure that their policies and procedures are consistent with relevant OCR guidance (see also Recommendations below).

¹⁶ 14 C.F.R. § 1253.135(b).

¹⁷ For example, the Title IX Q&A states that recipient grievance procedures are a mechanism used to determine whether a particular act, policy, or practice of a recipient complies with Title IX regulations. See, Title IX Q&A, "Grievance Procedures." The Title IX Q&A states that for those recipients who do not have Title IX grievance procedures or for those recipients who want to refine existing procedures, the Department of Education's guidance document, "Title IX Grievance Procedures: An Introductory Manual," (Education Manual) provides some of the basic components for such procedures. This document is accessible through the U.S. Department of Education at <http://eric.ed.gov/>. The grievance procedures should also provide the steps necessary to correct the policy or practice that does not comply with Title IX regulations. See, Education Manual. Additionally, recipients should inform the grievant of the right to file a discrimination complaint with an appropriate federal agency, either simultaneously with the filing of an internal grievance or after the unsatisfactory resolution of a grievance. See also, U.S. Department of Education, Office for Civil Rights, "Revised Sexual Harassment Guidance: Harassment of Students by School Employees, Other Students, or Third Parties," (Jan. 19, 2001), § IX. Prompt and Equitable Grievance Procedures (accessible at <http://www.ed.gov/about/offices/list/ocr/docs/shguide.html>.) (OCR Revised Sexual Harassment Guidance).

¹⁸ OCR Revised Sexual Harassment Guidance, § IX. Prompt and Equitable Grievance Procedures (citations omitted).

¹⁹ Ibid.

²⁰ Ibid.

²¹ See U.S. Department of Education, Office for Civil Rights (ED OCR), "Dear Colleague" letter, re: Bullying (October 4, 2010) (accessible at <http://www2.ed.gov/about/offices/list/ocr/letters/colleague-201010.html>); and ED OCR, "Dear Colleague" letter re: Sexual Violence (April 4, 2011) (accessible at <http://www2.ed.gov/about/offices/list/ocr/letters/colleague-201104.html>).

(i) Procedures as Written

PSU has two Title IX related grievance procedures: 1) Statement on Nondiscrimination and Harassment - Policy AD42; and 2) Sexual Harassment – Policy AD41. Both policies designate the AAO and the VPAA as having the authority to investigate Title IX complaints. AD42 instructs that concerns relating to discrimination and/or harassment should be reported to the AAO, or, alternatively, to the Office of Human Resources, the Division of Student Affairs, the Office of Educational Equity or an administrator or faculty member in his or her department or unit. Similarly, AD42 refers to these organizations as well as the SHRP. Importantly, both policies require that when the incident is not initially reported to the AAO, the person receiving the complaint must contact the AAO “to ensure consistent responses to issues across units.” Both policies specify that if the AAO is unsuccessful at resolving the issue informally, the AAO may investigate to reach a formal determination on the merits of the allegations. The penalties for PSU community members found to violate AD41 by engaging in sexual harassment range from a disciplinary warning to termination or expulsion from the university. In these process elements, particularly the multiple points of contact embedded in the process, NASA finds that Penn State’s procedures are consistent with OCR guidance and NASA regulatory requirements.

However, neither AD41 nor AD42 provides designated timeframes for major stages of the process, with AD42 merely stating that the University will make reasonable effort to promptly investigate and resolve complaints. The AAO informed NASA that it does have an internal process that stipulates that complaint investigations be completed within 60 days of receipt unless extenuating circumstances prohibit the completion of complaints within this timeframe.²² The review team found more detailed information regarding complaint processes and procedures posted on the AAO Web site which states that complaints will be acknowledged within five business days with an explanation of the process and anticipated time frames for action.

While these are reasonable timeframes, the lack of clarity as to timeframes in the procedures themselves is not consistent with OCR guidelines. The differing locations of information tend to make the process less than clear-cut to the average individual trying to negotiate it. In addition, the procedures do not alert complainants to their right to file a complaint directly with a Federal funding agency such as ED OCR or NASA, nor does it appear they make provision for appeals or requests for reconsideration. Lastly, the procedures as written do not take into account all ED OCR guidance on ensuring compliance with Title IX grievance procedures requirements (see Recommendations below).²³

NASA notes that PSU’s Graduate School policy contains a provision that specifically addresses discrimination and harassment in the context of graduate student terminations. For students terminated from their graduate program due to “unsatisfactory scholarship,” e.g., inadequate G.P.A., the policy provides that the matter be referred to the AAO, which will then manage the investigation, determine whether the student’s allegation has merit, and report back to the program Chair and any other University office as appropriate. If the AAO determines that the student’s allegation is unfounded, the program chair will then provide an opportunity for the student to meet with him or her and, if applicable, the program committee or other faculty involved in the decision to terminate the student’s program (see “Promising

²² Email from AAO to NASA June 25, 2012.

²³ For example, in its April 2011 Dear Colleague letter providing guidance to Federal grant recipients on their internal grievance processes under Title IX, ED OCR states that “[I]n order for a school’s grievance procedures to be consistent with Title IX standards, the school must use a preponderance of the evidence standard (*i.e.*, it is more likely than not that sexual harassment or violence occurred). The “clear and convincing” standard (*i.e.*, it is highly probable or reasonably certain that the sexual harassment or violence occurred), currently used by some schools, is a higher standard of proof. Grievance procedures that use this higher standard are inconsistent with the standard of proof established for violations of the civil rights laws, and are thus not equitable under Title IX. Therefore, preponderance of the evidence is the appropriate standard for investigating allegations of sexual harassment or violence.”

Practice” below). The explicit inclusion of this provision in the Graduate Student policy and the utilization of the Title IX coordinator’s office in connection with resolving such matters, is an important means of demonstrating the Graduate School’s commitment to students’ rights under equal opportunity laws.

(ii) Procedures as Implemented

The AAO is PSU’s entity for investigating, adjudicating and/or resolving complaints of prohibited harassment or discrimination on the basis of sex. However, AD41 and AD42 provide for a number of faculty and staff to serve as points of contact for the initial receipt of gender discrimination and sexual harassment complaints. Title IX concerns may also be addressed through the College and departmental level. All academic departments and units at PSU have a Sexual Harassment Resource Person (SHRP). There are two SHRPs in every academic college, two in every administrative unit and two on each PSU satellite campus. The SHRP function is a collateral duty for PSU staff, with other primary duties. The role of the SHRPs in each college and work unit is to provide prompt access to a knowledgeable individual to address sexual harassment issues at the most immediate level. The SHRPs receive annual training to provide informal assistance to students, faculty and staff, including explaining options for responding to sexual harassment complaints. They also have direct access to the AAO. When an individual reports sexual harassment, the SHRP receiving the complaint must contact the Affirmative Action Office to discuss resolution and ensure consistent responses to issues across the units. All such reports are to be treated confidentially to the extent reasonable.²⁴ The procedural resource that guides the SHRPs is the AAO publication “Recognizing and Responding to Sexual Harassment.”²⁵

In addition, the Department has two faculty members who serve as Ombudspersons to assist students in resolving conflicts and whose formal role, according to PSU’s Graduate Handbook, is to enhance communication between graduate students and their advisors, and to act as impartial parties to facilitate the timely and fair resolution of conflicts or grievances. The Graduate Handbook states that the Ombudspersons for each academic unit should, if possible, be one male and one female faculty member. The College also has an Associate Dean for Educational Equity (the ADEE) who coordinates educational and outreach programs for K-12 students and promotes diversity in the College and the Department. Faculty informed the review team that they may consult the ADEE as necessary on equity issues.

The review team found through interviews with faculty and students (including the two faculty members appointed as Ombudspersons), that Ombudspersons are generally involved in resolving interpersonal conflicts between students and their faculty advisors, for example, students who want to switch advisors. Most of the interviewed students informed NASA that they would go to the Ombudspersons first if they felt they were experiencing sexual harassment or gender discrimination. They also stated that they would consult with the Department Chair or Undergraduate or Graduate Program Advisor, as appropriate. Faculty interviewed stated that they would first consult with the ADEE or the Department Chair with either gender discrimination/sexual harassment complaints. With respect to the SHRPs, NASA found that they appear to be an underutilized and largely unrecognized resource for handling and processing sexual harassment complaints. Only one interviewee, a faculty member, stated that a first point of contact would be the SHRP (see Recommendations below).

The Ombudspersons stated that they have not had any gender discrimination or sexual harassment complaints brought to them by students or faculty. Both Ombudspersons stated that they had no specific

²⁴ PSU AAO publication “Recognizing and Responding to Sexual Harassment Complaints”

<http://www.psu.edu/dept/aaoffice/pdf/shrpguide1.pdf>

²⁵ This document is accessible at <http://www.psu.edu/dept/aaoffice/pdf/shrpguide1.pdf> on the AAO Web site.

training for their role other than their review of PSU brochures or Web sites for information that would assist them with their role. One Ombudsperson reported not being familiar with PSU's sexual harassment or nondiscrimination complaint procedures. In addition, the faculty stated that issues are generally handled and resolved within the department and one Ombudsperson reported that there was never an issue that had to be handled outside the Department or CEMS. Indeed, the AAO reported that there were no complaints of sex discrimination (including sexual harassment) or grievances against faculty, staff, or students by Geosciences majors (filed internally or with state or Federal agencies) during the period of NASA's review. The ADEE stated that she has not received complaints of discrimination from students in the Department.

This is consistent with NASA interviews during the onsite review. No students or faculty reported incidents of sexual harassment within the Department, CEMS, or PSU to the review team. However, NASA did hear from faculty and/or students about three instances of alleged inappropriate gender related conduct or treatment occurring in the Department during the period of the review. One of these instances, involving a staff member, was reported to a faculty member by several graduate students. The faculty member immediately reported the incident to a supervisor. The incident was resolved quickly and no disciplinary action was found to be necessary. This incident demonstrates one of the themes of this review, which is that the CEMS and the Geosciences Department have a sound structure in place, including an Associate Dean for Educational Equity, faculty Ombudspersons and dedicated SHRPs, to address equal opportunity related matters when they arise.

The other two instances reported to NASA involve discrete allegations of potentially gender-based differential treatment by individual faculty members. These instances tend to suggest two things: 1) the need for greater education and awareness regarding the structures in place to handle such matters; and 2) efforts to better ensure that all members of the PSU academic community are not only aware of resources at their disposal but feel comfortable in availing themselves of those resources (see Recommendation below).

b. Policy Dissemination

Relevant ED OCR and DOJ guidance also informed NASA's assessment of PSU compliance with the regulatory provision requiring dissemination of Title IX policy.²⁶ For example, OCR's guidance emphasizes the need for recipient institutions to have "well-publicized" grievance procedures.²⁷ In addition, OCR states, "without a disseminated [sexual harassment] policy and procedure, a student does not know either of the school's policy against and obligation to address this form of discrimination, or how to report harassment so that it can be remedied."²⁸ Furthermore, OCR states:

Distributing the procedures to administrators, or including them in the school's administrative or policy manual, *may not by itself be an effective way of providing notice, as these publications are usually not widely circulated to and understood by all members of the school community.* Many schools ensure adequate notice to students by having copies of the procedures available at various locations throughout the school or campus; publishing the procedures as a separate document; including a summary of the procedures in major publications issued by the school, such as handbooks and catalogs for students,

²⁶ See, e.g., U.S. Department of Justice Civil Rights Division, *Title IX Legal Manual* (Jan. 11, 2001), § V.E., p. 111 (accessible at <http://www.usdoj.gov/crt/cor/coord/ixlegal.htm>); OCR Revised Sexual Harassment Guidance.

²⁷ See OCR Revised Sexual Harassment Guidance, Preamble, "Enduring Principles from the 1997 Guidance."

²⁸ *Ibid.*, § V(D), "The Role of Grievance Procedures."

parents of elementary and secondary students, faculty, and staff; and identifying individuals who can explain how the procedures work.²⁹

DOJ regulations also make Federal funding agencies and recipient institutions responsible for disseminating information materials, e.g., handbooks, manuals, pamphlets, to ensure program beneficiaries are aware of their rights pursuant to EO law.³⁰

Both AD41 (Sexual Harassment) and AD42 (Statement on Nondiscrimination and Harassment) can be located on PSU's General University Reference Utility (GURU) Web site, which is an online repository of PSU policies and procedures. AD41 and AD42 are also accessible through PSU Web site keyword searches that lead to both policies on the GURU Web site. A number of PSU Web sites, including AAO's Web site, have the GURU Web links to these policies. NASA also found that AD41 is referenced in the Department's Graduate Handbook, where students are advised that sexual harassment complaints are the primary responsibility of the AAO, and that students can, if they wish, contact the CEMS SHRP (whose name, office address, phone number and email are published in the Graduate Handbook) for assistance.

The review team found, however, that AD41 and AD 42 are not as widely disseminated as the PSU Non-Discrimination Statement, which, as previously discussed, appears on dozens of PSU documents, Web sites and other media. In this regard we note that the Geosciences Department's Graduate Program "Regulations and Procedures for Graduate Students" (August 2009) contains information on AD41 (the Sexual Harassment Policy), but the "Undergraduate Advising Handbook" does not contain any information regarding AD41, AD42, or contact information to initiate complaints under the above-referenced policies. Similarly, while the CEMS 2011-2012 Undergraduate Student Handbook contains PSU's Non-discrimination Statement, and information regarding the ADEE, the publication does not contain information regarding AD41.³¹ Moreover, neither CEMS nor the Geosciences Department has on their Web sites links to the Non-discrimination Statement, AD41 and 42, the AAO-published "Sexual Harassment Prevention" brochure, or the recently issued advisory from the Office of the President, dated June 27, 2012, alerting all members of the campus community to available resources, including the PSU-wide SHRP and the AAO, for reporting any suspected illegal or unethical conduct.³²

2. Recommendations

a. Grievance Procedures as Written. Regarding the procedures as written, PSU needs to address certain deficiencies. For example, while the AAO has developed timeframes for the processing of complaints, these are not stated in AD41 and AD42 but rather are contained in an internal process that is only partially made public. PSU needs to address these and other concerns with the procedures as written to ensure full compliance with the NASA regulations and OCR standards. Specifically, PSU should conduct a concerted and thorough review of its AD41 and AD42 procedures, to address the:

- lack of clarity as to timeframes in the procedures;
- need to provide for appeals or request for reconsideration;
- need to alert complainants to their right to file a complaint directly with a Federal funding agency such as ED OCR or NASA; and
- considerations set forth by ED OCR, e.g., OCR's [April 2011 "Dear Colleague" letter](#).

²⁹ Ibid., § IX. Prompt and Equitable Grievance Procedures (emphasis added).

³⁰ Public dissemination of Title VI information, 28 C.F.R. § 42.405(c).

³¹ <http://www.ems.psu.edu/sites/default/files/u5/students/handbook.pdf>

³² The Sexual Harassment Prevention brochure is accessible at <http://www.psu.edu/dept/aaoffice/pdf/SHbro.pdf>; the President's Advisory Statement is accessible at http://www.senate.psu.edu/resource_report_wrongdoing.pdf.

b. Policy/Procedures Implementation and Dissemination. CEMS and the Department can do more to disseminate policies such as AD41 and AD42, as well as the identities and roles of key staff involved in the implementation of these policies and procedures, especially the AAO and the SHRPs. CEMS and the Department can also do more to better educate faculty, staff and students on the role of the SHRPs and the distinction between the SHRPs and the faculty Ombudspersons. To the extent that the Ombudspersons continue to be viewed as the “go to” resource, CEMS and the Department, in partnership with the AAO, the OVPEE, the ADEE, and the SHRPs should take steps to ensure that the Ombudspersons are adequately trained to handle sexual harassment and gender discrimination issues when they arise. Further CEMS and the Department should better disseminate AD41 and AD42, by for example, ensuring that they are included in all primary student information documents, such as the graduate and undergraduate handbooks. CEMS and the Geosciences Department should provide on their Web sites links to the Non-discrimination Statement, AD41 and 42, the AAO-published “Sexual Harassment Prevention” brochure, and the June 27, 2012, advisory from the Office of the President.

3. Promising Practices

Notable Procedural Element. The PSU Graduate School policy provision that specifically addresses discrimination and harassment in the context of graduate student terminations is a promising practice. The explicit inclusion of this provision in the Graduate Student policy and the utilization of the Title IX coordinator’s office in connection with resolving such matters is an important means of demonstrating the Graduate School’s commitment to students’ rights under equal opportunity laws.

C. Title IX Self-Evaluation

1. Compliance Assessment

The NASA Title IX regulations required recipient institutions to conduct a Title IX Self-Evaluation regarding admissions and treatment of students by September 29, 2001, and to keep the Self-Evaluation on file for three years.³³ NASA’s Title IX regulations call on grant recipient educational institutions to evaluate their policies and practices as well as the effects of these in three main areas: 1) admission of students; 2) treatment of students; and 3) employment of both academic and nonacademic personnel working in connection with the recipient’s education programs and activities. Recipients are also required to modify any policy and practice that does not or may not meet the requirements of the Title IX regulations. Self-evaluations are very helpful to ensure that educational institutions are providing equal opportunities regardless of gender in all aspects of their programs and activities. For example, self-evaluations can help to ensure that selection criteria and academic practices do not adversely impact students based on gender. They also provide an opportunity to evaluate trends over time and to develop mechanisms for proactively addressing emerging issues.

PSU evaluates the status of female students and faculty at the University through its Commission for Women (CfW), one of a number of educational equity related panels operating under the aegis of the OVPEE and charged with addressing concerns regarding a specific underrepresented group (see Section II.A.1.a above). The CfW has standing “issues” committees relevant to Title IX requirements, including wage equity, family leave policies, and personal safety and sexual assault awareness. The CfW has issued a number of reports with recommendations about these and related issues affecting PSU’s women employees and students, including workplace and classroom climate, recruitment, advancement, and

³³ Self-evaluation, 14 C.F.R. § 1253.110(c).

retention, among others.³⁴ PSU is to be commended for the ongoing work of its CfW (see Promising Practices below).

PSU reported that neither CEMS nor the Geosciences Department, had conducted a Title IX self-evaluation. PSU informed NASA that “CEMS does monitor and proactively address environmental conditions for women...as part of (PSU’s) larger strategic planning effort.”³⁵ The Department addresses the subject of diversity briefly in its “Department of Geosciences Strategic Plan 2009-2014” (the Department Plan). In addition, the CEMS Diversity Plan details the measures that will be taken to increase diversity and has provisions for monitoring faculty and student metrics by gender. However, there is minimal reference to gender specific efforts in the Department Plan and the CEMS Diversity Plan and no mention of specific efforts relating to women, such as monitoring the enrollment and/or retention and graduation of women. It appears from the review and PSU’s materials submitted in response to NASA’s information request that CEMS, and to some extent, the OVPEE focus mainly on the status of minorities at PSU (see Recommendation below).

2. Recommendation

College-Wide Title IX Self-Evaluation. NASA recommends that the CEMS, and in particular, the Geosciences Department conduct a Title IX self-evaluation, as outlined in NASA’s recent publication, [Title IX and STEM: A Guide for Conducting Title IX Self-Evaluations](#). This will enable the Department and CEMS to conduct a more in-depth analysis of the status of Title IX compliance in both entities. The Department Plan and the CEMS Diversity Plan should address any issues identified in the Title IX self-evaluation process. CEMS should undertake this self-evaluation in partnership with the VPAA, the VPEE, and the Committee for Women. Other PSU STEM programs should be encouraged to do also conduct Title IX self-evaluations.

3. Promising Practice

Committee for Women (CfW) Activities. While many of the universities NASA has reviewed under its Title IX Compliance Program have bodies similar to PSU’s CfW, there are a number of striking aspects of this body that bring it to the forefront. One example is the level of coordination of the CfW with organizations within PSU that have roles and responsibilities relating to Title IX, including the OVPA and the OVPEE. This ongoing collaboration enables the CfW to gain from the experience of these organizations in addressing Title IX concerns “on the front lines.” This is important because it helps to imbue the work of the CfW with a civil rights compliance perspective. Indeed, the topics addressed by the CfW in its many reports and in its standing “issues” committees, e.g., Campus Safety, Wage Equity, Family Leave, reflect Title IX compliance issues and help to integrate generalized notions of gender equity with the kinds of specific, “real world” concerns which a focus on compliance with Title IX and its regulations can help to address at the institutional level.

³⁴ See, e.g., [Report on the Status of Women at Penn State 2007-2008](#); and [Work-Family Balance at Penn State](#), Findings from the 2008–09 Focus Groups of Faculty and Staff.

³⁵ PSU response to NASA’s Information Request Letter 9/30/10 (6A).

D. Recruitment, Admissions, Enrollment, Degrees Earned, and Faculty Hires³⁶

1. Compliance Assessment

Regulatory requirements and findings of fact are set forth as part of the compliance assessment. The NASA Title IX regulations state that recipients may not discriminate on the basis of sex in admissions and recruitment.³⁷ Consistent with this requirement, NASA reviewed the Department's student recruitment and admissions practices, as well as student departures and degrees earned. For graduate students, NASA also examined financial assistance awarded to students and success on the comprehensive and qualifying exams. The review was based on at least five academic years of data provided by PSU, from the 2005-06 to 2009-10 academic years.

a. Outreach and Recruitment

NASA found that the Department and CEMS actively recruit prospective graduate students to enroll in the Department's graduate program. While some recruitment of potentially interested students pre-application may be done informally by students and faculty at geosciences conferences, symposiums and colloquia, most of the recruitment is targeted toward admitted applicants who have not yet made a decision to attend a university. Faculty and students informed NASA that the key recruitment activity is to invite admitted students to spend a weekend at PSU and tour PSU, CEMS, and the Department and speak to students, faculty, and staff. Faculty and staff also informed NASA that their recruitment activities also extend to a number of outreach programs that are used to spark interest in geosciences of pre-college students from kindergarten through 12th grade. The ADEE and Department faculty informed NASA that although these outreach programs may not garner immediate admissions results, they are nonetheless important recruitment activities because: 1) K-12 schools do not teach geosciences specifically and outreach may provide initial knowledge about foundation geosciences disciplines such as geology; and 2) geosciences is considered a "discovery" discipline, meaning that undergraduate students do not decide they are interested in geosciences until they are in college.

With respect to recruitment activities directed towards increasing the enrollment of women at the graduate and undergraduate levels, the Department advised in its response to NASA's request for information that "because of the historical underrepresentation in our particular disciplines CEMS, each department and institute has identified the issue of recruitment of undergraduate and graduate female students ... as a key priority." Through internal and external outreach, CEMS has developed a number of strategies to attain this goal, including but not limited to:

- Participating at WEPAN (Women in Engineering Program Advocates Network) annual meetings.
- Contributing financially to WISE (Women in Science and Engineering), and the Dean serving as an advisory board member to guide WISE activities.
- Collaborating with the Office of Graduate Educational Equity (OGEE). OGEE is a partner and advisor in the College's efforts to identify, recruit and retain historically underrepresented graduate students, including females.
- Emphasizing the Geosciences' Africa Array and the Summer Hydrology Program in concert with SROP, Ronald E. McNair, Fort Valley 3/2 Program and the Louis Stokes Alliance Minority Participation Programs, all of which have aided greatly in the recruitment of female students.
- Sponsoring, over the years, a "Talking Across EMS" series that serves to encourage interactions between women faculty, research associates, and graduate students.

³⁶ All data in this section was provided by the University in response to NASA's information request.

³⁷ Admission, 14 C.F.R. §1225.300; Recruitment § 1253.310.

b. Graduate Admissions and Enrollments

According to the Graduate Handbook, students are admitted either to the Department’s M.S. or Ph.D. degree program; a student may work toward a Ph.D. degree without first earning a master's degree. After meeting Graduate School requirements, graduate applications are evaluated by the Department’s Admissions Committee, with input by faculty members within the relevant sub-discipline into which the applicant seeks admission. The Admissions Committee uses the follow quantitative and qualitative factors to evaluate the abilities and attributes of applicants:

- GRE scores, course grades, and, when available, research publications
- Written personal statements and other forms of communication (emails or letters)
- Prior research experience
- Endorsement by mentors
- Demonstration of strong work habits

Faculty interviewed by NASA confirmed that the above procedures and practices are used to admit applicants into the Master’s and Doctorate programs of the Department. Both Faculty and longer-term students in the graduate program reported to NASA that they have noticed an increase over the years in the number of women in the Department’s graduate programs. Some faculty cited the inclusion of life science sub disciplines into existing Geosciences offerings as a key element in attracting female students to the Department. Faculty and students also cited the Department’s overall reputation as one of the best Geosciences graduate programs in the nation as an attractor to all prospective students. The students interviewed by NASA offered a variety of reasons for enrolling in the Department, including the opportunity to do research that interests them, and personal situations. Students did not report any problems related to gender in the application process.

With respect to admissions data, NASA found little difference between the proportions of male/female applicants and the proportions of those who were admitted by the Department. In other words, NASA found that female and male applicants were admitted at almost identical rates, as shown in Table 1 (on right). Table 1 also shows that offers made, as a percent of applications, has trended upward for women over the five year period.

| TABLE 1 - GRADUATE OFFERS AS PERCENT OF APPLICANTS | | |
|---|--------|-------|
| | FEMALE | MALE |
| 2005-06 | 25.0% | 28.6% |
| 2006-07 | 28.3% | 25.9% |
| 2007-08 | 26.1% | 32.9% |
| 2008-09 | 40.6% | 41.1% |
| 2009-10 | 30.6% | 26.2% |
| TOTALS | 30.2% | 30.3% |

| TABLE 2 - MATRICULATION RATES (ADMITTEDS WHO ENROLLED) | | |
|---|--------|--------|
| | FEMALE | MALE |
| 2005-06 | 75.0% | 83.3% |
| 2006-07 | 30.8% | 81.0% |
| 2007-08 | 44.4% | 65.4% |
| 2008-09 | 57.7% | 39.1% |
| 2009-10 | 50.0% | 54.5% |
| TOTALS | 52.6% | 63.64% |

However, as indicated in Table 2 (on left), females who were admitted accepted offers (matriculated) at a lower rate than males who were admitted. Some faculty stated that they may be more likely to lose female candidates to universities that have a higher ranking or are considered more prestigious.

As indicated in Table 3 (below), the number and percentage of women who enrolled in the Department’s graduate programs fluctuated from year to year, rather than steadily increasing or decreasing over the five year period.

Some faculty members attributed the decline of new female enrollments in the second and third years of the five year period to economic factors related to the recession. New male enrollments also dropped, in year three, although not as precipitously as new female enrollments dropped in 2006-07.

Table 4 (below), which is the total enrollment of graduate students for the five year period, also shows year-to-year fluctuations of the numbers and percentages of female enrollment. With the exception of 2007-08, female enrollment has hovered around 40 percent, which is lower than the 46 percent of women in graduate earth sciences programs nationwide.³⁸

| | FEMALE | MALE | TOTALS | F% | M% |
|----------------|--------|------|--------|-------|-------|
| 2005-06 | 12 | 15 | 27 | 44.4% | 55.6% |
| 2006-07 | 4 | 17 | 21 | 19.0% | 81.0% |
| 2007-08 | 8 | 17 | 25 | 32.0% | 68.0% |
| 2008-09 | 15 | 9 | 24 | 62.5% | 37.5% |
| 2009-10 | 11 | 12 | 23 | 47.8% | 52.2% |
| TOTALS | 50 | 70 | 120 | 41.7% | 58.3% |

| | FEMALE | MALE | TOTALS | F% | M% |
|----------------|--------|------|--------|-------|-------|
| 2005-06 | 42 | 61 | 103 | 40.8% | 59.2% |
| 2006-07 | 33 | 54 | 87 | 37.9% | 62.1% |
| 2007-08 | 27 | 57 | 84 | 32.1% | 67.9% |
| 2008-09 | 37 | 55 | 92 | 40.2% | 59.8% |
| 2009-10 | 39 | 52 | 91 | 42.9% | 57.1% |
| TOTALS | 178 | 279 | 457 | 38.9% | 61.1% |

b. Graduate Financial Assistance, Exams, and Degrees Earned

NASA found that once a graduate applicant is admitted, he/she will find a faculty member who shares a mutual or similar research interest, conduct research, prepare for examinations with the faculty member as advisor, and be awarded financial assistance. The Department awards graduate students with teaching assistantships

(TAs) and research assistantships (RAs). According to the Graduate Handbook, the Department's policy is that Ph.D. students will spend no more than four semesters on TA support; the rest of their support comes from external RAs or fellowships. Students who enter the Ph.D. program having completed their M.S. within the Department should expect no more than six semesters of departmental support during their association with the department. No student reported problems or issues with getting financial support, particularly on the basis of gender. NASA found that the Department offers a number of graduate fellowships provided by government, corporate and private sources, with varying eligibility criteria, which are listed and described on the Department's Web site.³⁹

| | FEMALE | MALE | TOTALS | F% | M% |
|----------------|--------|------|--------|-------|-------|
| 2005-06 | 10 | 5 | 15 | 66.7% | 33.3% |
| 2006-07 | 3 | 3 | 6 | 50.0% | 50.0% |
| 2007-08 | 2 | 4 | 6 | 33.3% | 66.7% |
| 2008-09 | 3 | 3 | 6 | 50.0% | 50.0% |
| 2009-10 | 4 | 5 | 9 | 44.4% | 55.6% |
| TOTALS | 22 | 20 | 42 | 52.4% | 47.6% |

NASA reviewed five years of financial assistance provided to graduate students, including fellowships, RAs, and TAs. While the percentage of female students receiving fellowships (Table 5, on left) varied from year to year, women received a percentage (52.4 percent) of fellowships well above their overall enrollment rate (38.9 percent) for the five year period.

On the other hand, women received RAs and TAs (Tables 6 and 7, below) at a lower rate (36.1 percent for RAs and 37.9 for TAs) than the female enrollment rate (38.9 percent) for the five year period. PSU informed NASA that no student in the Department had his or her financial support terminated during the five year period. Since the percentage of women receiving financial assistance is near the rate of overall

³⁸ [National Science Foundation, National Center for Science and Engineering Statistics \(NCSES\), Science and Engineering Indicators 2012, Arlington, VA \(NSB 12-01\), January 2012.](#)

³⁹ <http://www.geosc.psu.edu/graduate-scholarships-fellowships-awards>

enrollment of women in the Department, and since students interviewed by NASA cited no gender bias in the awarding or administration of financial assistance, NASA determined that there is no Title IX compliance issue with respect to fellowships, RAs, or TAs.

NASA looked at student success on the candidacy, comprehensive, and thesis (oral) defense exams (both master's and doctorate),

| TABLE 6 - GRADUATE RESEARCH ASSTS | | | | | |
|--|--------|------|--------|-------|-------|
| | FEMALE | MALE | TOTALS | F% | M% |
| 2005-06 | 16 | 37 | 53 | 30.2% | 69.8% |
| 2006-07 | 19 | 35 | 54 | 35.2% | 64.8% |
| 2007-08 | 13 | 30 | 43 | 30.2% | 69.8% |
| 2008-09 | 21 | 36 | 57 | 36.8% | 63.2% |
| 2009-10 | 27 | 32 | 59 | 45.8% | 54.2% |
| TOTALS | 96 | 170 | 266 | 36.1% | 63.9% |

| TABLE 7 - TEACHING ASSISTANTSHIPS | | | | | |
|--|--------|------|--------|-------|-------|
| | FEMALE | MALE | TOTALS | F% | M% |
| 2005-06 | 13 | 16 | 29 | 44.8% | 55.2% |
| 2006-07 | 8 | 22 | 30 | 26.7% | 73.3% |
| 2007-08 | 11 | 21 | 32 | 34.4% | 65.6% |
| 2008-09 | 12 | 15 | 27 | 44.4% | 55.6% |
| 2009-10 | 9 | 13 | 22 | 40.9% | 59.1% |
| TOTALS | 53 | 87 | 140 | 37.9% | 62.1% |

disaggregated by gender for the five year period under review.

Data provided by PSU indicated that only two of 31 male students and one out of 27 female students failed the candidacy exam on the first try. No student failed any other exam on the first try and no students failed any exam on the second try. Since the number of failures compared to attempts is small for both male and

female students and since students interviewed by NASA did not raise gender bias in the administration or grading of examinations, NASA determined that there is no Title IX compliance issue with respect to graduate examinations.

c. Graduate Degrees Awarded

A final indicator of female participation in the graduate program examined by NASA was the percent of degrees awarded to male and female graduate students (Table 8, below) between 2006 and 2010. NASA

| TABLE 8 - GRADUATION RATES (GRADUATE) | | | | | |
|--|--------|------|--------|-------|-------|
| | FEMALE | MALE | TOTALS | F% | M% |
| 2005-06 | 8 | 18 | 26 | 30.8% | 69.2% |
| 2006-07 | 14 | 12 | 26 | 53.8% | 46.2% |
| 2007-08 | 9 | 8 | 17 | 52.9% | 47.1% |
| 2008-09 | 3 | 17 | 20 | 15.0% | 85.0% |
| 2009-10 | 11 | 20 | 31 | 35.5% | 64.5% |
| TOTALS | 45 | 75 | 120 | 37.5% | 62.5% |

found that, as with other indicators, the percentage of degrees awarded to women fluctuated from year to year with the female graduation rate higher than male graduation rate in two of the years and lower in the other three years. The overall graduation rate for women (37.5 percent) for the five-year period approximates their rate of enrollment (38.9 percent).

PSU advised NASA that it does not track students who voluntarily drop out or leave the program and it had no graduate students who involuntarily separated from the program due to academic or other reasons in the five year period. Since the percentage of women graduating from the Graduate program is near the rate of overall enrollment of women in the Department's graduate programs, NASA determined that there is no Title IX compliance issue with respect to graduate degrees awarded by the Department.

d. Undergraduate Admissions, Enrollments, and Degrees Earned

The Department's undergraduate program offers several bachelor degree options: geosciences (BS, BA), geobiology (BS), earth science (BS) and earth science and policy (BS).⁴⁰ The requirements for admission into the undergraduate program are PSU's general requirements for most undergraduate programs.

⁴⁰ The Earth Science and Policy degree was offered after NASA's onsite review

Students and faculty interviewed by NASA indicated that the graduate program does not rely on the undergraduate program for future students. Most of the graduate students interviewed by NASA completed undergraduate or master's work at other universities.

PSU informed NASA that undergraduate admissions data was not available. NASA's review of undergraduate enrollment data (Table 9, below), obtained for the same five-year period of 2005-06

| TABLE 9 - TOTAL UNDERGRADUATE ENROLLMENTS | | | | | |
|--|--------|------|--------|-------|-------|
| | FEMALE | MALE | TOTALS | F% | M% |
| 2005-06 | 10 | 22 | 32 | 31.3% | 68.8% |
| 2006-07 | 9 | 32 | 41 | 22.0% | 78.0% |
| 2007-08 | 10 | 34 | 44 | 22.7% | 77.3% |
| 2008-09 | 10 | 36 | 46 | 21.7% | 78.3% |
| 2009-10 | 20 | 42 | 62 | 32.3% | 67.7% |
| TOTALS | 59 | 166 | 225 | 26.2% | 73.8% |

through 2009-10, revealed that overall undergraduate female enrollment was 26.2 percent, with fluctuations from year to year ranging from 22 percent to 32.3 percent. In the middle three years of the period, women's enrollment did not keep pace with the overall growth in the program. Not until 2009-10 did women's enrollment increase, whereas men's enrollment steadily rose during the period. NASA notes that the undergraduate

enrollment percentage of women in the Department is well below their percentage in the graduate program (38.9 percent) and the national percentage of undergraduate women earning bachelor degrees in earth science (40.0 percent).⁴¹ NASA recommends that PSU examine the reasons and root causes for the lower than expected enrollment of women in the undergraduate program.

With respect to the graduation rates of undergraduate students in the Department (Table 10, below) NASA found that while the overall graduation rate for women (28.8 percent) was higher than the overall enrollment rate (26.2 percent), the graduation rate dropped from 38.5 percent (10 female students) in the 2005-06 academic year to 19 percent (eight female students) in the 2009-10 academic year.

| TABLE 10 - GRADUATION RATES (UNDERGRADUATE) | | | | | |
|--|--------|------|--------|-------|-------|
| | FEMALE | MALE | TOTALS | F% | M% |
| 2005-06 | 10 | 16 | 26 | 38.5% | 61.5% |
| 2006-07 | 10 | 17 | 27 | 37.0% | 63.0% |
| 2007-08 | 8 | 17 | 25 | 32.0% | 68.0% |
| 2008-09 | 6 | 20 | 26 | 23.1% | 76.9% |
| 2009-10 | 8 | 34 | 42 | 19.0% | 81.0% |
| TOTALS | 42 | 104 | 146 | 28.8% | 71.2% |

Based on the data, NASA attributes the sharp percentage drop not primarily to the decrease in the number of females earning bachelor degrees, but to the sharp increase of males earning bachelor degrees (from 16 to 34 between 2005 and 2006). While the size of the undergraduate program grew in the middle three years of the period, women's enrollments did not keep pace (see

Table 9 above) and NASA believes that shortcoming is reflected in the graduation rates.

d. Faculty Hires

NASA found that in the Fall of 2010, the Department had 34 faculty members, including professors, lecturers, adjunct, and research professors. Seven of the 34 faculty members were female (20.6 percent), a relatively high number for a geosciences department. Several faculty members (both male and female) interviewed by NASA stated that the presence of women on the faculty was important for the success of female students. PSU informed NASA that only one faculty hire was made in the three years preceding 2010. PSU also reported that based on voluntary submission of data cards, the pool consisted of 19 males and four females. The successful candidate was female. NASA learned that efforts are taken to

⁴¹ [National Science Foundation](#), January 2012. Note: The NSF *S&E Indicators* does not provide undergraduate enrollment by sex for earth sciences, as it does for master's and doctorate enrollment; it does provide bachelor degrees earned data.

make search committees gender diverse and the AAO has a number of online resources to assist faculty search committees in considering gender diversity for their committees and for faculty hires.⁴²

According to interviews with faculty, the Department had few female professors in previous years, hiring its first female professor in 1986, then a second in 1991, a third in 1998, and then several more hires in the 2000s. NASA learned from faculty interviews that the Department was able to increase the number of women faculty through an initiative of hiring the spouses of male candidates. The Department Head⁴³ explained that in most instances over the past several years, the Department would hire the “trailing” female spouse of a male hire for a fixed three year, non-tenure term. The faculty subsequently voted to place these female faculty members on tenure tracks.

The Department was able to hire trailing spouses because of PSU administration support. The Provost’s office covered a third of the salary and benefits, while the Department covered the remaining two-thirds. The Department Head also indicated that while this initiative precluded the Department from making other hires, it was critical in not only hiring more women faculty, but retaining them in the Department as well; the department had only lost one faculty member to another university at the time of the onsite. NASA has determined that there is no Title IX compliance issue with respect to the Department’s faculty hiring practices.

2. Recommendations

a. Periodic Examination of Student Data by Gender. The Department should conduct periodic examination of student data (such as was compiled for NASA’s review) to regularly assess trends of male/female participation in the program. If negative trends are noted and persist over time, the Department should investigate for root causes and take appropriate actions to ensure equal opportunity on the basis of gender. For example, one troubling trend is the low enrollment and graduation rates of females in the undergraduate program.

b. Follow Up With Graduate Applicants who Decline Offers. The Department should follow up with applicants who decline offers to determine whether/how their reasons can be addressed, and to ascertain whether there are gender differences in the reasons for applicants declining offers.

c. Identify Reasons for Voluntary Departures. PSU advised NASA that it does not track students who voluntarily drop out or leave the program. CEMS and/or the Department should make an effort to gather and maintain this type of data to assess trends, 1) to ensure that reasons for student departures are not based on sex discrimination, and 2) to develop strategies for countering the reasons for departure, as appropriate.

3. Promising Practices

a. Recruitment and Outreach Programs. Both CEMS and the Department engage in a wide array of activities listed above that range from post-offer recruitment weekends to a number of pre-college and K-12 outreach programs that can help build the Geosciences “pipeline” so that in future years, PSU, CEMS and the Department can have more interested female prospective students apply and be accepted into the Department’s undergraduate program.

b. “Trailing Spouse” Hires. The Department’s efforts, with support from the Provost’s Office, for hiring and retaining female faculty has resulted in a substantial increase in female faculty in the Department over the years, which has also resulted in a welcoming environment for female students (see Program Administration and Academic Environment below).

⁴² <http://www.psu.edu/dept/aaoffice/recruitresources1.htm>

⁴³ The Department Head NASA interviewed during the onsite is not the current Department Head

E. Program Administration and Academic Environment

1. Compliance Assessment

The NASA Title IX regulations provide that a recipient shall not, on the basis of sex, exclude from participation in, deny the benefits of, or otherwise limit any person in any advantage or opportunity pertaining to academic, extracurricular, research, occupational training, or other education program or activity operated by the recipient.⁴⁴ The Title IX regulations explicitly state that a recipient may not discriminate on the basis of gender with regard to career counseling or guidance.⁴⁵

Additionally, the NASA Title IX regulations include a detailed provision on matters pertaining to marital and parental status.⁴⁶ Generally, under the regulations, a recipient may not apply any rule concerning a student's actual or potential parental, family, or marital status that treats students differently on the basis of sex. Regarding pregnancy and related conditions, the regulations state that a recipient may not discriminate against any student, on the basis of the student's pregnancy, childbirth, false pregnancy, termination of pregnancy, or recovery, unless the student requests voluntarily to participate in a separate portion of the program or activity of the recipient.

The regulations require that pregnancy and childbirth be treated in the same manner and under the same policies as any other temporary disability or physical condition.⁴⁷ Further, Title IX requires that in the case of a recipient that does not maintain a leave policy for its students, or in the case of a student who does not otherwise qualify for leave under such a policy, “a recipient shall treat pregnancy, childbirth, false pregnancy, termination of pregnancy, and recovery from the termination of pregnancy as a justification for a leave of absence for as long a period of time as is deemed medically necessary by the student's physician, at the conclusion of which the student shall be reinstated to the status that she held when the leave began.”⁴⁸

NASA's Title IX regulations also incorporate, by reference, the NASA Title VI regulatory provision prohibiting a recipient from utilizing methods of administration which have the effect of defeating or substantially impairing accomplishment of the objectives of the program for an individual based on sex.⁴⁹

On the basis of these provisions, the compliance team examined PSU and Geosciences program administration and its impacts, both positive and negative, on the overall academic environment of Geosciences, including academic advising, career counseling, research participation, classroom experiences, parental or marital status (“family friendly”) policies and physical safety of the program environment.

a. Academic Advising

In the Geosciences Department undergraduates are advised by the Department's Undergraduate Program Head, while graduate students are advised by their faculty research advisor. Faculty and students informed the NASA review team that with respect to the graduate program, faculty and students tend to choose each other based on mutual research interests. Students and faculty also stated that in some instances, a student could have a co-advisor if the research involves more than one discipline.

⁴⁴ Education programs or activities, 14 C.F.R. § 400(a), (b)(7).

⁴⁵ Counseling and use of appraisal and counseling materials, 14 C.F.R. § 1253.425.

⁴⁶ Marital or parental status, 14 C.F.R. § 1253.445 and 1253.530.

⁴⁷ Admission, *Prohibitions relating to marital or parental status*, 14 C.F.R. § 1253.300(c)(3).

⁴⁸ Marital or parental status, 14 C.F.R. § 1253.445 (b)(5).

⁴⁹ Enforcement procedures, 14 C.F.R. § 605.

NASA finds that a potential area for interpersonal conflict is in the area of academic advising. Conflicts can occur between advisor and student for a variety of reasons. NASA found that the Department's Ombudsperson provides an avenue to resolve these conflicts, and faculty reported general success with this program, though the services of the Ombudspersons have not been used often. The Ombudsperson was established several years ago by one of the Department's faculty and emulates the faculty ombudsperson that exists in CEMS to address conflicts and concerns that arise between faculty members. Students informed NASA that their relationships with their advisors are generally good and without problems. Only one student reported that she had made a change in advisors, due to incompatible research interests. Accordingly, NASA finds no compliance issue with respect to Title IX with respect to Academic Advising.

b. Classroom Experiences and Research Participation

Students and faculty informed NASA that the overall climate and environment in the Department is collegial, cooperative without major interpersonal conflict issues. The environment is widely described as a pleasant place to work, research and study. NASA found no evidence or indications of sexual harassment or gender discrimination in the classroom or research environments.

However, several students and faculty stated their belief that some female faculty appear to be tougher on or more demanding of female Department staff and on female students than male students. None of the students considered the behavior of these female professors to be harassing in nature. In addition, some interviewed expressed a concern about the research "field camps"⁵⁰ that are held, where junior year undergraduate students travel to a location to conduct field research. Male and female students are together for several days in these locations. Specifically, the field camps are described as having a "macho" feel, since the sub-disciplines most involved in the field camp tend to be male-dominated. Some interviewees also expressed a concern that the environment could be intimidating for undergrads. The Department Head informed NASA that there was an issue with a faculty member's treatment of some of the students at a field camp and that this faculty person will no longer attend field camp. NASA concludes that the Department actively monitors conditions in the classroom, its facilities and other settings to ensure an environment that is free of harassment and discrimination.

As previously stated, NASA found that CEMS does not conduct climate surveys due to concerns about a lack of anonymity. NASA also learned that the Department has not conducted exit interviews for some time. The only method of student feedback available is the Student Rating of Teaching Effectiveness (SRTE). Students in all undergraduate and graduate courses offered by the Department are given the opportunity to respond anonymously to the following question as a part of the course and instructor evaluation at the end of each semester:

If you believe it is relevant, please comment on your perception of the degree to which the instructor showed appropriate sensitivity to students representing a different or culturally diverse background (for instance: race, gender, age, religion, or culture)?

PSU advised NASA that their review of the SRTE results for every semester from fall 2005 through spring 2010 showed an overwhelmingly positive response from those commenting. These comments were mostly directed at diversity generally; for example, indicating "Treated everyone the same." Some comments were related to specific areas of diversity. Over the five year period, there were six comments relating specifically to gender (three positive and three negative).

⁵⁰ <http://www.geosc.psu.edu/field-camp>

Despite the lack of effective feedback tools, NASA found that the Department appears prepared to mitigate concerns regarding classroom and Department climate. It is recommended that the Department and CEMS take steps to develop effective feedback tools to enhance the monitoring of climate issues. In addition, PSU should regularly inform students of the resources available to mitigate and resolve issues that could lead to harassment, intimidation, or discrimination, such as the Associate Dean for Educational Equity (ADEE) and SHRP, as well as the Ombudspersons, to handle general issues of conflict.

c. Parental/Marital Status (“Family Friendly” Policies)

NASA found that PSU, CEMS and the Department have policies and procedures in place covering pregnancy, childbirth, and postpartum care for faculty and students. The policies for faculty and staff, or Human Resources Guidelines (HRGs) are posted on the CEMS Web site,⁵¹ and include maternity leave, parental leave for faculty (use of sick leave), family leave, “tenure clock” stoppage (up to one academic year) for pregnancy and childbirth (PSU policy HR 23), and time/facility accommodations for lactation and breastfeeding, including the use of extended break time, alternative work schedules, and on-campus lactation stations.

With respect to HR 23, NASA found that in practice, a faculty member can be granted one tenure stay without penalty. While a second tenure stay can be requested, a second stay of tenure for any reason is generally not looked on favorably and is considered rare in academe.

The Department Head informed NASA that an assistant professor in the fourth year of her tenure track had requested a second tenure stay for pregnancy and childbirth (the first was granted because of delays and problems with setting up her lab). The Department Head was not in favor of approving the second stay, as her fourth year evaluation (by the Department’s tenure committee) was extremely weak. He counseled the faculty member to wait until after childbirth to request the stay, since it might not be needed. However, after consultation with the Vice Provost, he granted the second stay.

Both the Department Head and female faculty informed NASA that the Department Head was sharply criticized for his initial stance against the second tenure stay, which was even addressed in his performance evaluation. The assistant professor is still in the Department, as of the date of this report, and may be up for tenure in 2013. This event raises concerns regarding HR 23, which can lead the reader to believe that stopping the tenure clock for childbirth will not be penalized, yet does not address situations in which the tenure stay request for childbirth is a second stay request.

The Department informed NASA that there were three requests (one female faculty, one male student, and one female student) for pregnancy/childbirth and family/dependent care leave between 2005 and 2010 and all three were approved.

NASA found that students are permitted to take leave for childbirth and pregnancy and time is extended for them to complete degree requirements. At the time of the onsite visit, two female students and several male students had children and accommodations were granted to them for child care. According to the Graduate Handbook, if a graduate assistant is unable to fulfill duties because of pregnancy or adoption, every effort should be made to assist the graduate assistant perform duties for the duration of the semester. If the graduate assistant cannot do so, the student’s stipend can be maintained for up to 3 weeks or until the end of the stipend period (whichever occurs first). The department head can grant an additional three weeks leave, if necessary. However, NASA also found that if external funding is involved (e.g., a NASA grant), it is the responsibility of the principal investigator to ensure that the commitments to any grant or contract are fulfilled and to ensure that the funding agency rules allow the implementation of such leave.

⁵¹ http://www.ems.psu.edu/faculty_staff/human_resources/child_care

PSU has three child care centers on campus, but admittance to one of the centers is not guaranteed because space is limited and the centers frequently have a waiting list. Several students and faculty described the existence of a wait list to access these services, which results in students and faculty working from home or obtaining off-campus day care. Students and faculty are permitted to bring their children to the Department for parts of a day, rather than a whole day. Students and faculty reported no issues with the Department's implementation of childbirth, pregnancy or family leave policies.

The CfW's Family Leave Issues Committee issued a report recommending, among other things, greater support for breastfeeding/pumping, and for flexible working conditions. The CfW is currently working in partnership with other University organizations, such as the Office of Human Resources to implement these recommendations.⁵²

d. Safety

NASA's review found the Department and its facilities, as well as the PSU campus in general, to be safe with respect to sexual assault and harassment. No student or faculty interviewed by NASA reported any incidents where they felt unsafe or had the need to call security services such as the PSU Police or the State College (municipal) police. The only safety concern reported to NASA was alcohol-induced behavior at fraternity parties and events (the Department is across the street from several fraternities) and resulting from PSU football games. As stated at the beginning of this report, PSU recently instituted sexual assault and alcohol awareness workshops that are mandatory for all newly-arrived students. NASA finds no evidence of gender bias or sexual harassment with respect to safety. Accordingly, NASA finds no compliance issue with respect to Title IX in this area.

e. Overall Academic Environment

OVPEE's key process for identifying issues that affect women at Penn State is detailed in "A Framework to Foster Diversity at Penn State 2010-15" (the Framework)⁵³ which includes gender equity issues and concerns, but not specifically for the CEMS or the Department. CEMS also has an Associate Dean for Educational Equity (The ADEE), who serves as a resource for Title IX and gender equity issues for students, faculty and staff affiliated with CEMS and the Department. The ADEE has prepared a companion document to the Framework called the "College of Earth and Mineral Sciences 2010 - 2015 Strategic Plan for Diversity" (the CEMS Diversity Plan). Both the VPAA and the VPEE indicated to NASA that they meet bi-weekly with the President to address the state of affairs, the direction and need for amendment to AA/EEO, and diversity programs and plans.

At the University level, PSU has the CfW, comprised of 230 total members,⁵⁴ serving as an advisory group to the President. According to its Web site, CfW assesses and reports on the status of women at PSU; examines and makes recommendations about issues that affect female employees and students, including workplace and classroom climate, maternity and child/elder-care policies, salary equity, sexual assault awareness, and other areas; collaborates with departments/organizations on gender-equity initiatives; and celebrates the contributions and achievements of women at PSU. Its most recent accomplishment was the development of PSU's Breastfeeding Support Policy in 2010. The Department has one undergraduate student on the CfW.

⁵² See http://equity.psu.edu/cfw/docs/work_family_balance_psu_09.pdf.

⁵³ This document is accessible at: http://www.equity.psu.edu/Framework/pdf/framework_2010_15.pdf

⁵⁴ Of the 230 members of the Commission, 41 are appointed by the President, three are ex-officio members (including the VPAA), and two are OVPEE staff members, while the rest are affiliate/volunteer members

2. Recommendations

a. Feedback and Evaluation Tools. It is recommended that the Department and CEMS not only continue monitoring of climate and environment issues, but also take these steps to develop effective feedback tools to monitor climate issues and regularly inform students of the resources available to mitigate and resolve any issues that could lead to harassment, intimidation and discrimination, such as the ADEE and SHRP, as well as the Ombudspersons to handle general issues of conflict.

b. Second tenure stays for childbirth. It is recommended that HR 23 be evaluated and revised to address situations in which a second tenure stay request is made for childbirth, to clarify that no tenure stays for childbirth will be penalized.

3. Promising Practice

SRTE Diversity Question. *The SRTE includes an opportunity for students to comment regarding the Instructor's "appropriate sensitivity" to a student "representing a different or culturally diverse background."*

III. CONCLUSION

NASA finds PSU and the Department to be in compliance with Title IX, but recommends implementation of the above recommendations to strengthen compliance with Title IX. NASA's recommendations are tailored to help the University and Department create more inclusive learning environments and to better ensure that all students have appropriate access to important information relating to sex discrimination, sexual harassment, and safety.

APPENDIX: SUMMARY LITERATURE REVIEW

In developing its Title IX onsite review program, NASA conducted a review of literature regarding gender and STEM programs, including Title IX policy and enforcement in the STEM context.⁵⁵ The review continues to be updated as new research and analysis on gender and STEM emerges. It also continues to assist NASA to better understand concerns regarding gender and STEM and how Title IX compliance efforts can assist to address such concerns.

Reports and Studies on STEM: Key Findings and Recommendations

In general, the studies and reports NASA reviewed in the literature describe a broad range of gender-related issues in STEM. For example, the 2004 report of the U.S. General Accountability Office (GAO) (referred to above) described participation rates by gender, observing continued low participation for women in certain STEM programs, such as physics and some engineering disciplines. The GAO report also noted the greater drop-off of women as compared to men at every stage, from high school to doctoral programs. The report highlighted the need for steps to help address this, such as strong outreach efforts to increase the interest of younger students in the sciences.⁵⁶ In addition, the report recommended that agencies with science missions, such as NASA and the U.S. Department of Energy, conduct Title IX compliance reviews to ensure that grant recipient programs are providing equal opportunity regardless of gender.

NASA also relied on a number of scholarly reports and publications. Prominent among these were the National Academy of Sciences, National Research Council report, *To Recruit and Advance: Women Students and Faculty in Science and Engineering* (2006) (hereafter cited as NRC Report or *To Recruit*

⁵⁵ See generally The National Academies, National Research Council, *Gender Differences at Critical Transitions in the Careers of Science, Engineering, and Mathematics Faculty* (2011); Marc Goulden, Ph.D., Karie Frasch, Ph.D., and Mary Ann Mason, J.D., Ph.D., The University of California, Berkeley Berkeley Center on Health, Economic, & Family Security and The Center for American Progress, *Staying Competitive: Patching America's Leaky Pipeline in the Sciences* (November 2009); The National Academies, National Research Council, *To Recruit and Advance: Women Students and Faculty in Science and Engineering* (2006); National Academy of Sciences, National Academy of Engineering and Institute of Medicine, *Beyond Bias and Barriers: Fulfilling the Potential of Women in Academic Science and Engineering* (2006); American Institute of Physics Statistical Research Center, *Women Physicists Speak Again*, April 2006 (accessible at: <http://www.aip.org/statistics/trends/reports/iupap05.pdf>); Ellen Sekreta, *Sexual Harassment, Misconduct, and the Atmosphere of the Laboratory: The Legal and Professional Challenges Faced by Women Physical Science Researchers at Educational Institutions*, 13 Duke J. Gender L. & Pol'y 115 (Spring 2006); Catherine Pieronek, *Title IX and Gender Equity in Science, Technology, Engineering and Mathematics Education: No Longer an Overlooked Application of the Law*, 31 J.C. & U.L 295 (2005); Government Accountability Office, *Gender Issues: Women's Participation in the Sciences Has Increased, but Agencies Need to Do More to Ensure Compliance with Title IX* (July 2004); American Institute of Physics Statistical Research Center, *Women in Physics Speak: The 2001 International Survey of Women in Physics*, 2001 (accessible at: <http://www.aip.org/statistics/trends/reports/iupap.pdf>); Corinne A. Moss-Racusin, John F. Dovidio, Victoria L. Brescoll, Mark J. Graham and Jo Handelsman, "Science faculty's subtle gender biases favor male students," *Proceedings of the National Academy of Sciences* (2012), accessible at <http://www.pnas.org/content/early/2012/09/14/1211286109.full.pdf> Jean M. Curtain, Geneva Blake, and Christine Cassagnau, American Institute of Physics, "The Climate for Women Graduate Students in Physics," *Journal of Women and Minorities in Science and Engineering*, vol. 3, pp. 95-117 (1997); Mildred S. Dresselhaus, Judy R. Franz, Bunny S. Clark, "Improving the Climate for Women in Physics: A Program of Site Visits Funded by the National Science Foundation" (American Physical Society and the American Association of Physics Teachers: 1995) (ME Program Summary, accessible at <http://www.ME.org/programs/women/sitevisits/summary.cfm>) (ME Program Summary).

⁵⁶ U.S. Government Accountability Office (GAO) report, *Gender Issues: Women's Participation in the Sciences Has Increased, but Agencies Need to Do More to Ensure Compliance with Title IX* (July 2004).

and Advance); the University of California Berkeley, Center on Health, Economic & Family Security report, *Staying Competitive Patching America's Leaky Pipeline in the Sciences* (2009) (hereafter cited as UC Berkeley Report); the American Association of University Women's report, *Why So Few? Women in Science Technology, Engineering, and Mathematics* (2010); and "Science faculty's subtle gender biases favor male students," in *Proceedings of the National Academy of Sciences* (hereinafter cited as the PNAS Report) (2012).

The Need for a Sustained Commitment to Diversity among University Leaders and Administrators

The NRC Report, *To Recruit and Advance*, was based on a comprehensive literature review and site visits to four universities "recognized for successfully advancing and retaining women students, faculty or leaders."⁵⁷ *To Recruit and Advance* was a valuable tool to better understand women's experiences in science, technology, engineering, and mathematics (STEM) studies and helped to guide NASA's assessment under the instant review of promising practices regarding recruitment and advancement of women students in STEM programs.⁵⁸ For example, the report identified the need to create and institutionalize a sustained commitment to diversity among university leaders and administrators.⁵⁹ This commitment should be demonstrated by dedicating resources to that effort, e.g., Women in Engineering programs, and through ensuring visibility for women students and faculty in communications materials and the Department's Web site, which can help to show that the program is welcoming and inclusive of women.⁶⁰ Another key strategy is to extend outreach to students at the K-12 and undergraduate levels in the form of summer science and engineering camps, lecture series, career days, and mentoring programs.⁶¹

Emphasizing the Societal Impacts of STEM Work

The NRC Report indicated that specific retention tools such as curricular modifications and "family friendly" policies might also be of assistance in increasing the numbers of women in STEM programs. For example, courses designed to emphasize the societal benefits or "real-world" applications of engineering have broadened the appeal of engineering studies, helping to create more diverse engineering student populations.⁶²

Family Friendly Policies

A 2009 report of the University of California at Berkeley, *Staying Competitive: Patching America's Leaky Pipeline in the Sciences* (UC Berkeley Report) notes that to be in compliance with Title IX, recipients must: 1) treat pregnancy as a temporary disability for purposes of calculating job-related benefits, including any employer-provided leave, and 2) provide unpaid, job-protected leave for "a

⁵⁷ NRC Report, Summary, p.2.

⁵⁸ NRC stated that it "sought to move beyond yet another catalogue of challenges facing the advancement of women academic in STEM to provide a document describing actions actually taken by universities to improve the situation for women." Ibid., Preface, p. vii.

⁵⁹ Ibid., chap. 1, p.8.

⁶⁰ Ibid., chap. 2, p.47.

⁶¹ Ibid.

⁶² Ibid., chap. 3, pp. 53 (citing Busch-Vishniac, I., and J. Jarosz, *Can diversity in the undergraduate engineering population be enhanced through curricular change?* *Journal of Women and Minorities in Science and Engineering* 10:255–281, 258 (2004)), 55, 60 (citing Farrell, E. F., "Engineering a warmer welcome for female students," *Chronicle of Higher Education*, February 22, 2002).

reasonable period of time” if the institution does not maintain a leave policy for employees.”⁶³ The UC Berkeley report also notes that, to help address family and care giving issues, institutions should have in place family responsive policies, benefits, and resources, including time-based policies and benefits such as stopping the clock (i.e., tenure-clock extension), various child care supports such as on- and off-campus centers, monetary supplements such as tuition remissions, and other resources such as lactation rooms.⁶⁴

Overall, the UC Berkeley Report, a major study on experiences of women scientists, found that unfriendly family policies—not lack of interest or commitment—are what turn many women away from academic science. Moreover, the report recommended universities adopt family supportive policies for all classes of researchers, not just faculty members, noting that graduate-student researchers and postdoctoral scholars receive the most limited benefits and yet are arguably the most important people affecting the future of U.S. science. In fact, the report found that this is the biggest leak in the pipeline: the point at which women who have received their Ph.D.s or are working as postdoctoral scholars are making the critical decision of whether to continue their careers in academic research. According to the report, too many of them are deciding not to, often because of their interest in starting a family.

Research conducted by the Alfred P. Sloan Foundation found that family formation—most importantly marriage and childbirth—accounts for the largest leaks in the pipeline between Ph.D. receipt and the acquisition of tenure for women in the sciences.⁶⁵ According to the Sloane Foundation research, women in the sciences who are married with children are 35 percent less likely to enter a tenure track position after receiving a Ph.D. than married men with children and 27 percent less likely than their male counterparts to achieve tenure upon entering a tenure-track job.⁶⁶ Tenured women are nearly three times more likely than men to be single without children.⁶⁷ In addition, the Sloane Foundation found that tenure-track faculty women who were married with young children were 21 percent less likely than tenure-track men who are married with young children, 26 percent less likely than tenure-track women who were married without young children, and 19 percent less likely than single women without children to have their work partially or fully supported by federal grants or contracts on a year-to-year basis.⁶⁸

Young scientists early in the pipeline are the least likely to receive benefits. Only a fraction of research universities offer a baseline family-responsive maternity leave policy of at least six weeks of guaranteed paid leave following childbirth to graduate students, postdoctoral scholars, and academic researchers, with only 13 percent of universities making this baseline policy available to graduate students (43 percent of them offer only ad hoc paid leave, or no paid leave at all). Many universities do provide some maternity and parental leave, but the limitations associated with these policies significantly affect contingent classes of researchers such as graduate students, postdoctoral scholars, and academic researchers. These limitations include requirements that limit the number of individuals who qualify for the policy, limitations on the length of the policy or the percentage of salary paid, and limitations focused on the accrual of sick and/or vacation leave.⁶⁹

⁶³ Marc Goulden, Ph.D., Karie Frasch, Ph.D., and Mary Ann Mason, J.D., Ph.D., The University of California, Berkeley Berkeley Center on Health, Economic, & Family Security and The Center for American Progress, *Staying Competitive: Patching America’s Leaky Pipeline in the Sciences* (November 2009), p. 5 (citations omitted).

⁶⁴ *Ibid.*, p. 6.

⁶⁵ Alfred P Sloan Foundation, “[Keeping Women in the Science Pipeline](#),” Drs. Mary Ann Mason, Marc Goulden, Karie Frasch, University of California, Berkeley, presented at the Workforce Flexibility Conference, Georgetown Law School, Washington, DC, Nov. 29-30, 2010.

⁶⁶ *Ibid.*, p. 5

⁶⁷ *Ibid.*, p. 7

⁶⁸ *Ibid.*, p. 10

⁶⁹ *Ibid.*, p. 8

As stated, to be in basic compliance with Title IX, universities must 1) treat pregnancy as a temporary disability for purposes of calculating job-related benefits, including any employer-provided leave, and 2) provide unpaid, job-protected leave for “a reasonable period of time” if the institution does not maintain a leave policy for employees. The Sloane Foundation paper recommends that Universities, in partnership with Federal agencies:

- Promote clear, well-communicated, baseline family responsive policies for all classes of researchers.
- Provide federal agency or university supplements to offset family event productivity loss.
- Collaboratively move toward a full package of family friendly policies that take into account the career-family life course.
- Remove time-based criteria for fellowships and productivity assessments that do not acknowledge family events and their impact on career timing.
- Collect and analyze the necessary data to make sure existing and future policy initiatives are effective in meeting researchers’ needs and comply with Title IX.⁷⁰

Education and Awareness Opportunities for STEM Faculty and Students

Another important tool for STEM departments is training to raise awareness among faculty and students on gender issues such as sexual harassment prevention.⁷¹ NASA’s Title IX compliance review program has shown a number of instances where STEM departments may benefit from targeted training to address issues relating to inappropriate gender-related conduct occurring in program settings, such as study groups, labs, and field trips.

Possible Presence of Implicit Bias

The PNAS report documented a randomized double-blind study conducted to test for the presence of gender bias on the part of science faculty that could contribute to the gender disparity in STEM fields. In this study science faculty from research universities rated the application materials of a student, who was randomly assigned either a male or female name, for a laboratory manager position. The study found that faculty rated the male applicant as significantly more competent and employable than the *identically-qualified* female applicant. These faculty also selected a higher starting salary and offered more career mentoring to the male applicant.

What is especially noteworthy is that the gender of the faculty participants did not affect responses, such that female and male faculty study participants were equally likely to exhibit bias against the female student. This study also found that preexisting subtle bias against women on the part of participating faculty was associated with less support for the female student, but was unrelated to reactions to the male student.

“Unanticipated” Issues

The NRC report also described issues that “may not be anticipated” influencing the working environment of the laboratory.⁷² For example, personal safety issues may be different for women working alone at night in a lab. One faculty member interviewed by NRC commented that whereas general safety issues had been “background noise,” as he put it, the issue of personal safety became a much higher priority when women students joined the lab.

⁷⁰ Ibid., pp. 12-13

⁷¹ NRC Report., chap. 4, p. 78

⁷² Ibid., chap. 2, p. 41.

Title IX Compliance Reviews

Title IX compliance reviews are also recommended in the literature as a means of addressing environmental issues that may negatively impact women in STEM. For example, the AAUW report *Why So Few?* states “Title IX reviews can help identify institutional policies and practices that negatively, and in some cases inadvertently, affect personal choices in gender-specific ways. Simply put, Title IX can help create a climate where women and men of similar talent who want to be scientists or engineers have equal opportunity to do so.”⁷³

Gender Issues in Physics Programs: Surveys and Site Visits

American Institute of Physics (AIP) Survey Results

To be aware of experiences of women in the physics context, NASA reviewed data collected by the American Institute of Physics (AIP). This data showed some of the concerns of women physics students about their program experiences. For example, a 1993 AIP “climate” survey of physics programs showed that only 27 percent of women graduate student respondents in the U.S. believe that their department encourages self-confidence.⁷⁴

In its 2001 survey report *Women Physicists Speak*, AIP observed that: “[w]omen . . . face barriers in the form of strongly held beliefs that [they] are incapable of doing good science”⁷⁵ and that “[c]onfidence in one’s ability can be especially important for female students when they confront the negative effects of sexism, which can cause women to question their ability or their right to pursue advanced degrees.”⁷⁶ And, in its 2006 report, *Women Physicists Speak Again*, the AIP continues to identify climate as one of the top reasons women physicists give for being discouraged about physics.⁷⁷

American Physical Society Site Visit Program

In its literature review, NASA also relied on the summary report of the American Physical Society (APS) Committee on the Status of Women Site Visit Program. The report, “Improving the Climate for Women in Physics,” provides valuable information gathered by APS about women’s experiences in physics programs, based on site visits to over 40 university physics departments across the country since 1990.⁷⁸ For each site visit, APS reviews quantitative and qualitative information to assess the climate for women at the host facility.

The findings generated from APS’s site visit program provide valuable context for gender equity issues in physics programs. According to APS, problems commonly experienced by women in the physics departments reviewed include instances of inappropriate behavior and attitudes such as pictures and computer printouts with inappropriate images of women in teaching assistants’ communal offices; thesis advisors who call their female students “honey” or the equivalent and “a prevalent assumption that all

⁷³ AAUW Report, p. 13 (citations omitted).

⁷⁴ See Jean M. Curtain, Geneva Blake, and Christine Cassagnau, American Institute of Physics, “The Climate for Women Graduate Students in Physics,” *Journal of Women and Minorities in Science and Engineering*, vol. 3, pp. 95-117 (1997); see also ME Program Summary

⁷⁵ American Institute of Physics Statistical Research Center, *Women in Physics Speak: The 2001 International Survey of Women in Physics*, 2001, p. 19. Accessible at: <http://www.aip.org/statistics/trends/reports/iupap.pdf>.

⁷⁶ *Ibid*, p. 7.

⁷⁷ American Institute of Physics Statistical Research Center, *Women Physicists Speak Again*, April 2006, pp. 10-12. Accessible at: <http://www.aip.org/statistics/trends/reports/iupap05.pdf>.

⁷⁸ APS Program Summary.

rewards obtained by women are "only because you are a woman."⁷⁹ APS found that the long term effects of these experiences "takes much of the enjoyment out of the graduate experience of many female physics students and helps to explain why only the very committed and the very tough remain in physics."⁸⁰

However, APS reports that the climate for women varies dramatically among the departments it has reviewed, with many positive climates reported.⁸¹ Based on its Site Visit Program, APS finds that important ingredients for a positive climate can include: at least several active, mainstream female faculty; a group of female students who interact regularly with each other; a supportive department chair who listens and responds to concerns of students; and efforts to create a safer physical environment.⁸²

Overall Recommendations

What the research literature tells us is that there are some proactive steps that STEM programs can take that are consistent with the purpose and intent of Title IX. A small sampling of these steps, representative of the larger themes in the literature on women and STEM, include:

- Engaging in targeted outreach and recruitment
- Establishing mentoring programs
- Sustaining strong partnerships with campus professional organizations, such as the Society of Women Engineers
- Adopting policies that enable faculty, students and employees to combine work, family and other personal responsibilities
- Providing ongoing education and awareness opportunities for faculty and students that is both tailored to the STEM environment and addresses issues such as implicit gender bias and inappropriate gender-related conduct that may not rise to the level of discriminatory harassment but is still unacceptable
- Conducting on-going self-evaluation efforts consistent with Title IX regulations, that is, a focus on admission and treatment of students, and employment.

Overall, NASA has found that Title IX compliance efforts of educational institutions can help to address such concerns regarding gender and STEM. For example, effective Title IX coordination can establish collaborative partnerships between the Title IX Coordinator's office and academic departments, ensuring, among other things, appropriate training for faculty and students to raise awareness on gender issues, e.g., harassment and gender bias. Effective Title IX coordination may also ensure that individuals fully understand the process for addressing discrimination concerns, and how to avail themselves of it.

In addition, periodic self-evaluation can greatly assist efforts to identify concerns regarding admission and treatment of students, and help programs to address problem areas in a host of specific areas, from stronger outreach and recruitment efforts, to greater transparency in program policies and practices, to program participants' perceptions of the program environment. NASA has found that the process of a Title IX review itself provides schools with an excellent opportunity to step back and assess their programs in these respects.

⁷⁹ Ibid.

⁸⁰ Ibid.

⁸¹ Ibid.

⁸² Ibid.